



ENTERPRISE DIRECTORY SERVICE (EDS)-LITE GLOBAL ADDRESS LIST SYNCHORIZATION (GAL Synch) CONOPS

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OFFICE OF STRATEGIC CONCEPTS AND INTEGRATION

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NETWORK ENTERPRISE TECHNOLOGY COMMAND/9TH SC (A)
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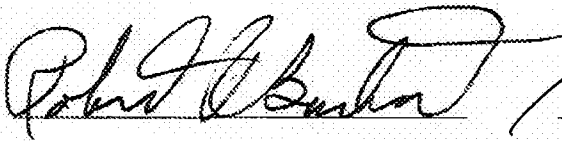
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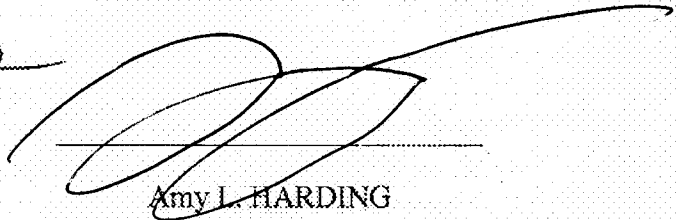
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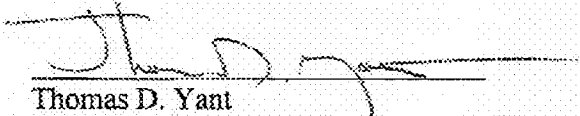
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1.0 Introduction

Enterprise Directory-Lite (EDS-Lite) (Global Address List Synchronization (GAL) Synch) will be a starting point for the establishment of an Army wide Enterprise Directory Services structure, which will be the basis for the first components of Army Core Enterprise Services.

This document describes the Army Enterprise Concept of Operations (CONOPS) for (EDS)-Lite GAL Synch program to be implemented Operated, and Maintained (O&M) within the approved Active Directory (AD) Forest in the Army Enterprise Infostructure (AEI) as a service provided by the Enterprise. This CONOPS also describes the organizational relationships, management responsibilities, and outlines the US Army Network Enterprise Technology Command (NETCOM)/9th Army Signal Command (ASC) actions to achieve the goal of a centralized management environment for EDS-Lite GAL Synch across the AEI.

1.1 Scope

This document applies to all Active Duty, National Guard, and Army Reserve organizations that are part of the approved AEI AD. The EDS-Lite/GAL consist of all mail-enabled user accounts in the AD Forests and attribute updates from Army Knowledge Online (AKO) and Global Directory Service (GDS) data sources. This system will be a repository of identities with associated attributes that will span the entire Army with the initial focus on sustaining base. The EDS-Lite/GAL solution will provide a Unified Army GAL (UAG) to support the Enterprise wide Army community.

1.2 Referenced Documents

- a. DA General Order 2002-05, Establishment of US Army Network Enterprise Technology CMD/9TH Army Signal Command, 13 August 2002.
- b. DA General Order 31, Reinforcing the establishment of the U.S. Army Network Enterprise Technology Command/9th Army Signal Command as a direct reporting unit and redesignating the Command as the U.S. Army Network Enterprise Technology Command/9th Signal Command (Army) 16 October 2006
- c. Army CIO/G-6, Army Knowledge Management (AKM) Implementation Plan, 1 September 2003.
- d. Army NETOPS CONOPS, Version 1.0, approved by CIOEB, 29 October 2002
- e. Memorandum, HQDA CIO/G6, SAIS-ZA, Subject: Army Policy for Windows NT 4.0 Replacement and Active Directory (AD) Implementation, 4 February 2004.
- f. Army Enterprise Infrastructure Directory Services Naming Conventions and Standards, version 5.1, 1 February 2007.
- g. Memorandum, HQDA CIO/G6, SAIS-AON-N, subject: Generating Force NIPRNet Microsoft® Exchange 2003 Implementation Guidance, 22 June 2006.
- h. EDS-LITE/GAL the Unified Army GAL Architecture, version 2.1, 21 February 2006.

- i. NETCOM Technical Authority (TA) 2006-003 (Final DRAFT), Subject: Exchange 2003 (E2K3) Implementation in the CONUS Active Directory (AD) forest.
- j. Active Directory Administration Responsibilities and Technical Guidance, version 1.0, 26 September 2003.
- k. Exchange 2003 CONOPS version 1.0, 27 April 2006.
- l. Army Regulation 25-2, Information Assurance, 14 November 2003.
- m. Chief of Staff of the Army (CSA) Senior Commanders Conference Guidance-- Immediate and Near Term Information Assurance (IA) Actions Message, SAIS, 161304Z Aug 04.
- n. Army G3 Directed Actions to Correct Information Assurance Vulnerability Alert (IAVA) Deficiencies RUEASUU 242157Z JUL 03.

2.0 Concepts for the EDS-Lite Project

Prior to the Enterprise messaging concept, many Army organizations have created dispersed email instances with some regional trusts between each other to establish localized address books. As the need for collaboration with other organizations increased, individual organizations created site connectors between the email instances in order to share their directory information. These dispersed email instances have made the existence of a community GAL very difficult to achieve and maintain. To further help Army organizations collaborate with their communities of interest (COI), some organizations expanded the effort of directory sharing to form much larger global address list directories by creating site connectors to dozens of Exchange 5.5 sites (i.e. the creation of the Headquarters Department of the Army (HQDA's) Information Management Support Center (IMCEN) GAL). Organizations put several manual processes in-place to address this dispersed addressing problem in the Exchange 5.5 architectures by sharing CSV files with other email instances. However, updating these individual system GALs is a manual process, which resulted in the existence of "stale" entries and inconsistent GAL data dependent on the Exchange implementation and maintainability of the GAL. As the Army moved forward to implement and migrate to the AD/Exchange 2003 (E2K3) Enterprise, it needs to look for a better way to provide a Unified Army GAL for all approved Army forests.

The EDS-Lite/GAL solution provides an automated solution for a consistent UAG that is accessible to all approved Army AD forests. The EDS-Lite/GAL provides users that have been migrated to E2K3 UAG worldwide.

This solution satisfies the need:

- a. To provide and integrate all valid available Public Key Infrastructure (PKI)/Common Access Card (CAC) certificates for Army users.
- b. To provide a complete UAG to each approved AD Forest.

The ability to access a consistent GAL containing all Army user contacts (Army White Pages) regardless of the user's home forest was one of the highest orders of information collected from the previous data calls accomplished by NETCOM.

The intent of EDS-Lite/GAL capability is to resolve GAL deficiencies created by multiple forest implementation of Exchange 2003. Upon installation of E2K3 in an AD Forest, it contains an internal GAL consisting of users within its own forest. The EDS-Lite/GAL solution addresses these deficiencies and can function as the baseline from which future Army Directory Service initiatives may expand. Entities (both users and contacts) within an Army Forest that are mail-enabled will populate the GAL in E2K3. A mail-enabled user can be a mailbox user (mailbox local to the forest exchange) or a mail enabled contact (mailbox resides outside the local Exchange organization) which is present in the GAL. The following table shows the capability that EDS-Lite will bring to the AEI.

Table 1 EDS-Lite and EDS (Additional phases) Capability Matrix

Capability Matrix table		
Capability	EDS-Lite (GAL Synch)	EDS (Additional Phases)
GDS Certificate Posting	▲	▲
UAG	▲	▲
GAL Synchronization across AEI	▲	▲
Full Synchronization – Army Knowledge Online (AKO)/AD Forests	▲	▲
DOD-wide Certificate posting	△	▲
DOD-Wide GAL	△	▲
Relevant GAL	▲	▲
Army-wide White Pages	△	▲
Army-wide Identification & Authorization	△	▲
Self Update	△	▲
Army-wide Management	▲	▲
Single Sign On	△	△
Signed / Encrypted Email	▲	▲

△ = Limited capability expectation, not fully deployed, or dependent upon other actions

▲ = Anticipated fully operational delivery

Blank = Not anticipated, or provided via other capability

In order to help manage and integrate information systems efficiently and securely, Microsoft developed an identity and access management framework. This framework integrates various identity management capabilities, making it easier for the Army to leverage this framework to define and maintain a unified view of identities. The proposed architecture for this identity management solution will consist of multiple editions of Microsoft Identity Integration Server (MIIS) as the central point for identity management and Active Directory Application Mode (ADAM) servers as the Lightweight Directory Access Protocol (LDAP) repository containing the joined identities.

The EDS-Lite/GAL final configuration will include a complete integration of the approved Army AD forest mailbox enabled user objects with the specific forest updated user attributes based on directions provided by the Department of Defense (DoD) and army naming standards. This integration of the Army user data attributes facilitated by

MIIS technology, which will populate the UAG with Army users that contain a valid AKO email address and an Electronic Data Interchange-Personnel Identifier (EDI-PI). Other MIIS technologies are utilized to interface with user populated approved AD Forests and synchronize user data objects between each forest. The EDS-Lite/GAL will provide the respective AD forests with the additional or updated entries, so that the GAL available within their Outlook Address Book will be an all-inclusive GAL. The all-inclusive UAG will include entries from AKO, GDS, and all approved AD Forests that communicates with the EDS-Lite/GAL system.

(Note: The use of vendor specific information is present in this CONOPS to identify the infrastructure installed and its use to support the enterprise. The terminology needing to be stated is specific to that infrastructure. This is subject to changes, or modifications, it does not represent an endorsement, and in no way intended to disparage any other vendor or alternative solutions. Moreover, the EDS-LITE (GAL Synch) representation is not meant to provide specific detail, but a general understanding of concept. Refer to the EDS-Lite (GAL Synch) Architecture document for more detail)

The figure below depicts an overview of the EDS-Lite (GAL Synch) solution and data flow between the EDS-Lite (GAL Synch) HUB and the various AD Forests.

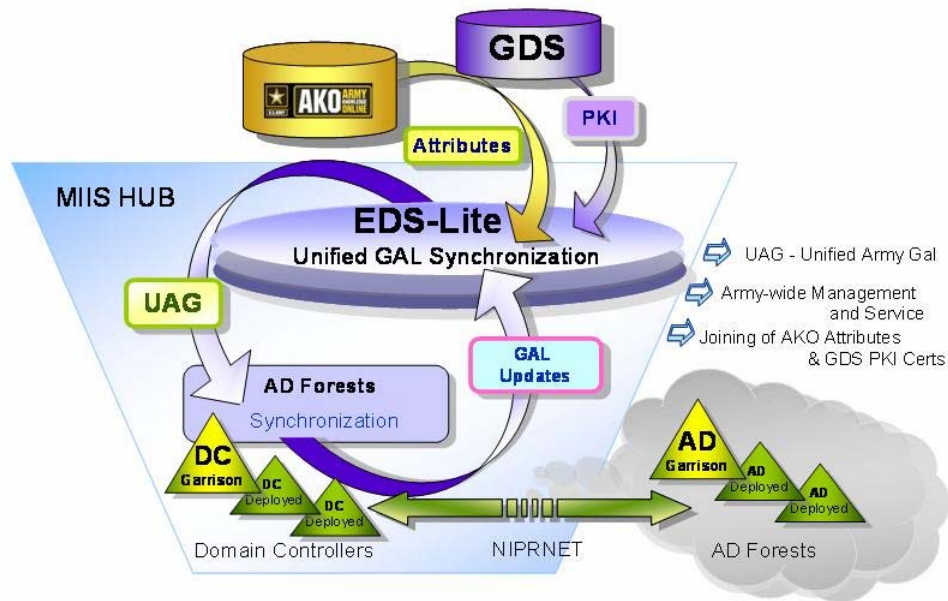


Figure 1: EDS-Lite (GAL Synch) Overview

3.0 EDS-Lite

EDS is a foundational approach to Army Core Enterprise Services. EDS is the projected direction for an Army wide solution in obtaining an Enterprise Directory Service integrated to the DOD Global Information Grid (GIG). EDS will need to go beyond the EDS-Lite (GAL Synch) solution stated here to accomplish a functional Army Information Grid (AIG), LandWarNet mission. The Army EDS-Lite (GAL Synch) solution is the first phase to accomplish the EDS objectives for the Army. The EDS-Lite (GAL Synch) solution is an approach to provide a UAG to support the Army Enterprise worldwide. This solution, referred to here in specific terms, is in the process of implementation to meet existing needs of Active Directory users within multiple AD forest environments. The EDS-Lite Hub design consists of network devices, MIIS servers, switches, Structured Query Language (SQL) servers, ADAM servers, and Domain Controllers (DCs) from each approved Army AD forest. The EDS-Lite Hub hardware and software inventory is located in Appendix A. The table below identifies the equipment to be located within the EDS-Lite Hub.

Table 2: EDS-Lite (GAL Synch) HUB Infrastructure

MIIS Servers	7
Switches	3
Computer Information System Company (CISCO) Firewall	1
ADAM Servers	2
SQL Servers	6
Domain Controllers (from each domain within the Army's approval AD environment) Note: Additional domain controllers will be added as other AD Forests are approved to operate within AEI.	97

Note: The respective forest owner will manage Domain Controllers (DC) remotely.

The table below identifies required resources to operate and manage EDS Lite Hub and domain controllers

Table 3 Resource Requirements

HUB & Facility Resources		
Item	Resource	Support Entity
MIIS Servers (part of EDS Lite Hub)	System Admin	C-TNOSC
	MIIS Coder (Part-time)	C-TNOSC
	System Tech	C-TNOSC
SQL Servers (part of EDS Lite Hub)	SYSTEM Admin	C-TNOSC
	Database Admin	C-TNOSC
	System Tech	C-TNOSC
ADAM Servers (part of EDS Lite Hub)	System Admin	C-TNOSC
	System Tech	C-TNOSC
Network Devices (HUB only)	System Tech	C-TNOSC
AD Domain Controllers (not part of the EDS Lite Hub)	System Admin	TNOSC / Functional Forest Owners
	System Tech	TNOSC / Functional Forest Owners

The Army will implement the EDS-Lite (GAL Synch) Infrastructure and the forest blade servers that will provide a unified GAL Synchronization Service to each Army approved Forest. The EDS Lite Hub and domain controllers will be initially located within the AKO facilities and then evaluate placement of the Hub to a designated Area Processing Center (APC) when fielded. NETCOM Global Network Operations and Security Center (NOSC) (G-NOSC) will, operate, manage, and defend the primary EDS-Lite Infrastructure the Theater NOSC manages AD Forest Blade servers. The MIIS, ADAM,

and SQL servers will be member servers within the Continental United States (CONUS) Forest. The EDS-Lite (GAL Synch) Hub and associated infrastructure and systems will be managed in accordance with AD Administration Responsibilities and Technical Guidance, reference 3.0 (j) of this document. EDS-Lite (GAL Synch) is the Army enterprise directory solution that provides a UAG from a centralized location.

3.1 EDS-Lite Topology

The EDS-Lite/GAL system centered on MIIS technology will create the UAG, for synchronization to the Army AD Forests for their internal replication. There will be only one EDS-Lite Hub consisting of six (6) operational MIIS/Identity Integration Feature Pack (IIFP) and SQLs instances to support GAL user update and GAL synchronization with the Army approved AD Forests. An MIIS component accepts and processes identity information from the AKO and GDS data consumers where it is processed and stored in a SQL database. This primary MIIS component will process the consolidated directory data to the ADAM servers, which are only accessible internally using LDAP/LDAPS by the MIIS/IIFP components. Due to the vast amounts of data processed between the AD Forests, multiple MIIS/IIFP and SQL instances will be used to control and load balance forest synchronized data and attribute updates. As illustrated later in this document, each instance of the MIIS/IIFP server will read GAL information from the different forest Domain Controllers located at the EDS-Lite/GAL Hub, store that data in their own SQL databases, and update the ADAM server. The forest user information will be written into each forest as contacts with the attribute updates on the user objects within each user domain. Each forest Domain Controllers (blade servers) located at the EDS-Lite/GAL Hub will replicate the directory data over the Wide Area Network (WAN) using Secure Internet Protocol (IPSEC) to the other DCs within their forest topology. Figure 2 below depicts a general overview of the EDS-Lite (GAL Synch) solution and data flow between the EDS-Lite (GAL Synch) Hub and the various AD Forests.

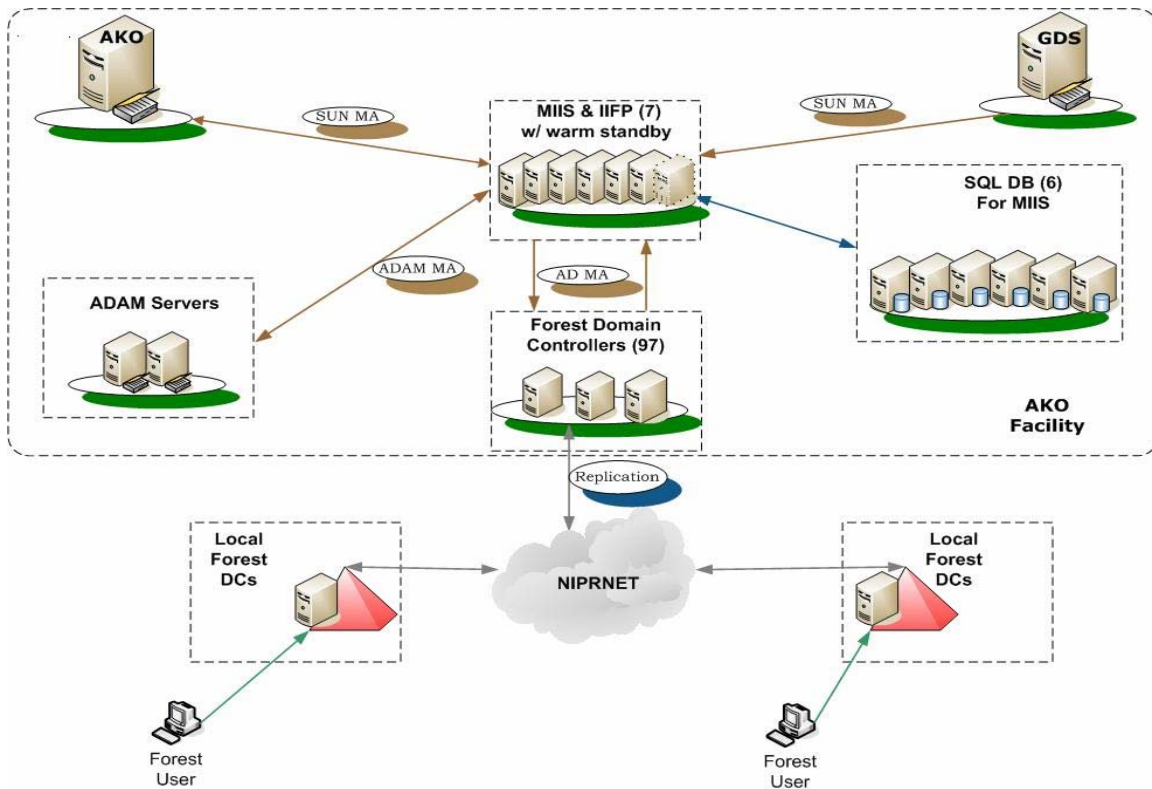


Figure 2: EDS-Lite/GAL Topology

3.2 User Attributes

The EDS-Lite (GAL Synch) capability provided to each AD approved forest organizations provides a consistent data flow of GAL information, to include DOD-PKI, email addresses, and other information from multiple authoritative sources (AKO, GDS, Defense Enrollment Eligibility Reporting System (DEERS) and AD approved forests). Table 4 contains a list of Army user enterprise attributes to provide a GAL within exchange and user information within each of the approved AD forests. Table 4 lists AD attributes name, description, source, how EDS-Lite attribute is updated in AD, and management responsibility. The attributes listed in table 4 are Enterprise AD user baseline attributes, any changes will be submitted IAW the AEI-Tech charter. The user information/attributes, such as DOD-PKI, AKO email address, rank, Electronic Data Interchange-Personnel Identifier (EDI-PI) (a unique number assigned to an individual for universal identification) and AD forests (user information) are processed and then moved to the EDS-Lite central repository. This integration of user identities facilitated by MIIS technology will populate the Army GAL in exchange with user's information from other AD Forests that contain a valid AKO email address and an EDI-PI. This consolidated data will form a single user identity, populated with the attributes listed, providing standard enterprise user information to all the approved Army AD forests and a UAG list in exchange. Subsequent additions to EDS-Lite (GAL Synch) will provide a complete integration of the approved Army AD Forest user identities.

EDS-Lite will enforce that all relevant user information and Public-Key information is derived from AKO, AD and GDS, respectively. EDS-Lite, as an Enterprise Service, will

update all user attributes designated (enterprise responsibility is shown in the table 4 below row four) and will overwrite any current AD Forest directories user information contained in these fields. If the forest owners require the current attributes/fields information in their directories, they are required to move this information to fields not owned by the enterprise. The Organizational Unit (OU) administrator's management rights will be removed for those attributes designated as enterprise management. For those user attributes that are not under enterprise management responsibilities, IAW table 4 column four, the AD Forest is the source for those attributes. The OU administrator will populate these user attributes IAW with the Army Naming Convention standard document chapter 7. Appendix B lists the Army enterprise user attributes baseline used within EDS-Lite (GAL Synch) project.

Table 4 EDS Lite Attributes

AD Attribute User Name	User Descriptive Attribute	Attribute Source	EDS-Lite Updates Attribute in AD	Management Responsibility
Sn	Last Name Letters (A-Z, a-z, space, apostrophe, and hyphen allowed)	AD	NO	Forest Owner (OU admin)
givenName	First Name Letters (A-Z, a-z, space, and - allowed)	AD	NO	Forest Owner (OU admin)
initials	Middle Initial Single letter (A-Z) or blank allowed.	AD	NO	Forest Owner (OU admin)
generationQualifier	Generational Qualifier Letters, numbers or blank allowed.	AKO	YES	Enterprise
personalTitle	Rank (for Military personnel), or Salutation (for non-Military individuals)	Rank-AKO Salutation-AD	YES (Rank only)	Rank-Enterprise Salutation-Forest Owner (OU admin)
ExtensionAttribute1	DOD Component IAW Army Naming Convention Table Section 7	AD	YES	Forest Owner (OU admin)
ExtensionAttribute2	DOD Sub-Component IAW Army Naming Convention Tables Section 7-2 (9)	AD	Yes	Forest Owner (OU admin)
mail	Electronic Mail Address (AKO Email Address)	Used for Joint purposes only	NO	Forest Owner (OU admin)
extensionAttribute4	Foreign National Country Code “FN” and the ISO-3166 three-character codes shall be used. See Appendix A for details	AKO	YES	Enterprise
Title	Position IAW Army Naming Convention Section 7	AD	NO	Forest Owner (OU admin)
displayName	Display Name Format: Last Name <COMMA> <SPACE> First Name <SPACE> Middle Initial <SPACE> Generational Qualifier <SPACE> Foreign National Country Code <SPACE> Rank/Salutation <SPACE> DOD Component <SPACE> DOD Sub-Component	EDS-Lite Data from AD, AKO and Calculated values.	YES	Enterprise
EmployeeID	EDIPI	AKO	YES	Enterprise
EmployeeType	Personnel Type	AD	NO	Forest Owner (OU admin)
UserCertificate	PKI Certificate	GDS	YES	Enterprise
telephoneNumber	Office Telephone Number	AD	NO	Forest Owner (OU admin)
facsimileTelephoneNumber	Fax Number	AD	NO	Forest Owner (OU admin))
Address	Street Address	AD	NO	Forest Owner (OU admin)
l	City	AD	NO	Forest Owner (OU admin)

AD Attribute User Name	User Descriptive Attribute	Attribute Source	EDS-Lite Updates Attribute in AD	Management Responsibility
St	State Name	AD	NO	Forest Owner (OU admin)
postalCode	Zip Code	AD	NO	Forest Owner (OU admin)
Phone-Office-Other	DSN	AD	NO	Forest Owner (OU admin)
ExtensionAttribute3	Contains information for processing in EDS-Lite IAW Army Naming Convention	AD	YES	Forest Owner (OU admin)
ExtensionAttribute5	Contains the name of Top Level Organizational Unit (OU) Purpose is to create installation address lists	AD	Yes	Enterprise
Extension Attributes 6, 7, 8, 9	Are for local installation use. The local installation defines their use.	Local installation OU Administrators	No	Local installation OU Administrators
Extension Attributes 10, 11, 12, 13, 14, and 15.	Reserved for future use by the Army	N/a	N/a	Requires approved RFC for use.

3.3 EDS-Lite Management Overview

The primary EDS Lite Hub servers except for the domain controllers will be member servers within the CONUS AD Forest as part of the service domain. OU administrators located within the CONUS Theater NOSC (C-TNOSC) perform the administration of the EDS Lite Hub components except for the domain controllers. The Army Global Network Operations and Security Center (A-GNOSC) is responsible for the management of the EDS-Lite (GAL Synch) servers, they have delegated the remote management to the C-TNOSC. The TNOSC or Functional NOSC (FNOSC) will remotely manage the domain controllers (Blade servers) located at the EDS-Lite Hub. The C-TNOSC will coordinate all Touch Labor performed by AKO personnel for the EDS-Lite equipment located at the AKO facility.

3.3.1 Operational Management (O&M) Concept

This section defines roles and responsibilities for EDS-Lite system management throughout the AEI. The Enterprise System Technology Activity (ESTA) is the NETCOM organization that has the responsibility to establish the technical guidance, procedures, and standards that govern EDS Lite operations. The Army Network Operations (NETOPS) CONOPS provides the basic framework for enterprise Operations and Management. The management levels are Enterprise, Theater, Installation, and Organization, which are consistent with the Army NETOPS CONOPS.

The Army Global Network Operations Security Center is responsible for the management of EDS-Lite (GAL Synch) Hub from a centralized location. The remote management of the EDS-Lite Hub been delegated to the CONUS Theater NOSC (C-TNOSC). The respective TNOSC or functional NOSC will manage their AD domain controllers remotely within EDS Lite Hub of the approved AD forest. Touch labor of the equipment located at the Hub will be performed by AKO personnel. EDS-Lite (GAL Synch)

management includes establishing technical procedures and guidance for overall management of EDS-Lite (GAL Synchronizer) across AD Forests. The tables below depict the overarching management concept.

Table 5 O&M Matrix

EDS-Lite (GAL Synchronizer) O&M Responsibilities						
Function	Capabilities	Capabilities Description	Infrastructure Supported	Software Supported	Number Items	Responsible Support Organization
MIIS/IIFP	Repository	Microsoft Identity Integration Server creates Metadata (Metaverse) for joining information to provide a unified view.	Server		6	C-TNOSC
	Stand-by	Back-up server for maintenance and failures.	Server		1	C-TNOSC
						C-TNOSC
				2003 Server Enterprise Edition /OS	7	C-TNOSC
				MIIS 2003 Enterprise Edition	2	C-TNOSC
IIFP		Identity Integration Feature Pack	N/A			
				IIFP	5	C-TNOSC
SQL	Repository	Stores SQL Data for quick MIIS access	Server		6	
				Windows 2003 Enterprise Edition / OS	6	C-TNOSC
				SQL 2000 Enterprise / App	6	C-TNOSC
ADAM	Application	ADAM Active Directory Application Mode supports Directory enable applications, providing LDAP, and housing UAG information	Server		2	C-TNOSC
				Windows 2003 Standard Edition / OS	2	C-TNOSC
				Windows 2003 ADAM	2	C-TNOSC
				ADAM / App	2	C-TNOSC

EDS-Lite (GAL Synch) O&M Responsibilities						
Function	Capabilities	Capabilities Description	Infrastructure Supported	Software Supported	Number Items	Responsible Support Organization
AD DC's	Domain Controllers	Located in each EDS-Lite HUB to read and write directory data Is part of each Forest)			97	TNOSC/ FNOSC
				Windows 2003 Standard Edition / OS	97	TNOSC/ FNOSC
				AD Configuration / App	97	TNOSC/ FNOSC
Development			Server		1	PM-DCASS
				Windows 2003 Enterprise Edition / OS	1	PM-DCASS
				Visual Studio.Net 2003	1	PM-DCASS
				Visual Basic	1	PM-DCASS
				C++	1	PM-DCASS
O & M		AD DC's				
		Create and Manage IPSEC Transport between External Servers (MIIS-AD DC's)	Netw			TNOSC/ FNOSC
		Create and Manage connections to the Forest AD DC Servers				TNOSC/ FNOSC
		Create and Manage replication to the Forest AD DC Servers				TNOSC/ FNOSC
		Create and Manage Service Accounts for MIIS Component connection				TNOSC/ FNOSC
		Manage Security Posture				TNOSC/ FNOSC
		EDS-Lite HUB				
		HUB Servers - MIIS, SQL, ADAM, Storage	Servers		15	C-TNOSC
		Monitor/Review all Event Logs				C-TNOSC

EDS-Lite (GAL Synchronizer) O&M Responsibilities						
Function	Capabilities	Capabilities Description	Infrastructure Supported	Software Supported	Number Items	Responsible Support Organization
		Monitor optimization and Performance				C-TNOSC
		Correct System/Application problems identified in Event Logs				C-TNOSC
		Reporting				C-TNOSC
		Install IAVA and other required patches (SUS)				C-TNOSC
		Scan servers to ensure IAVA & STIG compliance				C-TNOSC
		Computer Network Defense (CND)/IA Reporting				C-TNOSC
		Analysis of IDS Logs				C-TNOSC
		Maintain EDS-LITE Baseline				C-TNOSC
		Manage Software Configuration				C-TNOSC
		Manage hardware configuration				C-TNOSC
		Change Management				C-TNOSC
		Maintain System Image				C-TNOSC
		Create and Manage connection to Data Sources				C-TNOSC
		Manage the MIIS/IIFP Software				C-TNOSC
		Create and Manage Management Agents to/from Data Sources				C-TNOSC
		Create and Manage Software to parse and filter Data received from sources				C-TNOSC
		Backup and Restore MIIS/IIFP Configuration				C-TNOSC
		Create and Manage connection to the MIIS/IIFP Server				C-TNOSC

EDS-Lite (GAL Synchronizer) O&M Responsibilities						
Function	Capabilities	Capabilities Description	Infrastructure Supported	Software Supported	Number Items	Responsible Support Organization
		Manage the SQL Software				C-TNOSC
		Manage Database (Tables, Views, Job creation)				C-TNOSC
		Manage storage Enclosures(1-2TB)				C-TNOSC
		Backup and Restore				C-TNOSC
		Create and Manage connections to the MIIS Server				C-TNOSC
		Create and Manage IPSEC Transport between all Servers				C-TNOSC
CM						
		HW and SW Accountability				C-TNOSC
		License Management				C-TNOSC
		Documentation Management				C-TNOSC
		Change Management				C-TNOSC
		System/Software Distribution				C-TNOSC
		Security Management (e.g. IDS, IAVAs, AV, firewall, GPO)				C-TNOSC
		System Management				C-TNOSC
		Process Management				C-TNOSC
DR						
		MIIS 2003 Encryption Key Storage				C-TNOSC
		Save all source code, management agent's configuration, and database key after every production change				C-TNOSC
		Backup systems on a routine basis to ensure protection of updated data				C-TNOSC

EDS-Lite (GAL Synch) O&M Responsibilities						
Function	Capabilities	Capabilities Description	Infrastructure Supported	Software Supported	Number Items	Responsible Support Organization
		Review and update the DR documentation and processes on a regular basis and after any configuration change				C-TNOSC
		Conduct a DR drill on a regular basis				C-TNOSC
COOP		COOP will be accomplished at the APCs				C-TNOSC

3.4 EDS Lite Enterprise Management Roles and Responsibilities

This section addresses the roles of enterprise level organizations with regard to EDS-Lite operations within the AEI. Refer to the Army NETOPS CONOPS for a complete description from a NETOPS perspective of all organizations at the enterprise Level.

3.4.1 Army Chief Information Officer (CIO/G6)

The CIO/G6 is responsible to the Secretary of the Army and to the Chief of Staff of the Army for all Information Technology activities of the Department of the Army. From a Windows Server/AD perspective, CIO/G6 activities include:

- a. Provide Army EDS policies
- b. Establish Army EDS operating rules and guidelines
- c. Provide Enterprise level resources (including funds)

3.4.2 Network Enterprise Technology Command (NETCOM)

NETCOM is the standards and configuration management (CM), and the technical Command and Control (C2) authority for the Army's EDS-Lite system. It is responsible for implementing Army Information Technology (IT) O&M policy as established by CIO/G6. Consistent with these broad IT responsibilities, NETCOM is the central manager for EDS-Lite operations. NETCOM manages these services by assigning administrative roles to the Army organizations. NETCOM will:

- a. Provide processing platform management and administration of all EDS-Lite enterprise level servers.
- b. Manage/oversight of EDS-Lite architecture (this includes domain management in support of EDS-Lite).
- c. Provide support for organizational unit managers.

- d. NETCOM-ESTA Operational Engineering Directorate (OED) will provide engineering support for operational/deployed systems.
- e. Develop technical guidance, procedures, and standards published as Technical Authority (TA) Implementing Memorandums.
- f. Expand security monitoring to support Enterprise EDS-Lite servers including the management of the Intrusion Detection Systems (IDS) and host base intrusion detection.
- g. Test and apply all IA compliance and security patches to include validating IAVA compliance for all primary EDS-Lite servers.
- h. Maintains Enterprise Configuration Management (CM).
- i. Operate the Army enterprise; provide all Army users with enterprise-wide visibility Network Common Relevant Operational Picture (NETCROP) and access to Army White Pages.
- j. Execute overall management responsibility; delegate administrative roles as necessary to ensure efficient, effective operations of the EDS-Lite.
- k. Manage and provide Enterprise-level Anti Virus (AV) services for EDS-Lite servers.

3.4.3 Army Global Network Operation and Security Center (A-GNOSC)

The A-GNOSC supports Army NETOPS with status reporting, situational awareness, and operational support for the Army's portion of the GIG. The A-GNOSC also provides technical direction to and obtains status from Army TNOSCs, FNOSCs, and other service Network Operations and Security Centers (NOSCs). The A-GNOSC is responsible for oversight of the EDS-Lite operations at all levels within the Enterprise. The A-GNOSC provides operational, technical, and management input to NETCOM for the development of necessary TECHCON Implementation Memorandums. The A-GNOSC:

- a. Identifies, track, and manage all security events relative to EDS-Lite servers within the enterprise In Accordance With (IAW) current policies and procedures.
- b. Directs the respective TNOSC implementation of security programs, procedures, policies, and IAVA patches.
- c. Notifies and directs remediation actions to appropriate organizations whenever a system, within the root level, experiences a compromise.
- d. Supports Army NETOPS with status reporting, situational awareness, and operational support for the Army's portion of the GIG.

3.4.4 Program Executive Office Enterprise Information Systems (PEO EIS)/ Product Manager Defense Communications and Army Switched Systems (PM-DCASS)

PEO EIS and PM DCASS are responsible for the acquisition and implementation support of the EDS-Lite Hub with the key functions:

- a. Develop the EDS-Lite design.

- b. Serve as the material developer for design and development of EDS-Lite capabilities.
- c. Integrate future EDS-Lite and other EDS initiatives (if funded) with enterprise business systems including AKO, Windows Server and Exchange migration, Public Key Encryption, CAC, Defense Message System (DMS), GDS and EDS, and Domain Name Service (DNS).
- d. Provide engineering support relative to implementation of EDS-Lite enclave design and deployment.
- e. Establish and manage EDS-Lite enterprise contracts for necessary services, hardware, software, and third party tool acquisition.
- f. Develop the MIIS code that is required for EDS-Lite.
- g. Develop required attribute interface documents between AKO and GDS and Forests to establish memorandum of agreements defining responsibilities.
- h. Install and configure approved EDS-Lite standard designs and hardware/software configurations.
- i. Ensure EDS-Lite system and all components meet DA and DoD Information Assurance (IA) and all security accreditation requirements.
- j. Maintain software, test, and perform lifecycle maintenance of custom developed code needed for the EDS-Lite system that includes MIIS.
- k. Develop touch labor support agreements in support of the EDS Lite hub equipment within the AKO Facility
- l. Perform EDS/EDS-Lite (GAL Synch) O & M until transition to NETCOM.
- m. Develop plan to transition EDS-Lite to NETCOM as the O&M command.

3.4.5 CONUS Theater Network Operations and Security Center (C-TNOSC)

The CONUS Theater Network Operations and Security Center (C-TNOSC) delegated by the A-GNOSC as the highest-level Army organization with IT operational responsibilities to manage the EDS-Lite Hub. It interacts with the RCIOs and TNOSCs, providing situational awareness of the EDS-Lite as an enterprise system. Its responsibilities include ensuring IT assets operate correctly and for enforcing Army policies, standards, and processes within the Theater.

At the theater level, the C-TNOSC is responsible for EDS-Lite operations and security. The TNOSCs executes security related guidance from the A-GNOSC by implementing security programs, procedures, policies, and IAVA patches. TNOSC provides physical and application security by ensuring only authorized individuals have access to EDS-Lite & AD servers and by controlling accounts for administrative functions.

- a. Administration of all servers located at EDS-Lite Hub
- b. Administration of all network devices located at the EDS-Lite Hub
- c. Administration of EDS-Lite backup and recovery at the EDS-Lite Hub
- d. Administration of AV on all servers

- e. Establish account and access permissions to the file systems located within the theater level domains
- f. Establish and document DoD and Army standard security configurations
- g. Manage and administer active directory CONUS domain controllers within EDS-Lite Hub
- h. Delegate administrative roles necessary for distributed operations including service/system accounts
- i. Manage Enterprise level configurations through AEI Tech Configuration Control Board (CCB)
- j. Manage and provide theater-level AV/IAVA services for servers
- k. Provide EDS-Lite Situational Awareness NETCROP to the Theater and to the A-GNOSC
- l. Provide an EDS-Lite help desk service
- m. Call out all touch labor for the equipment located at the EDS-Lite Hub

The C-TNOSC will provide the following security services on the servers (except for forest domain controllers) located within the EDS-Lite Hub:

- a. Patch management (that includes IAVA reporting)
- b. Security scanning
- c. System log reviews
- d. Maintain Networkiness (including accreditations)
- e. Event analysis (content filtering, etc.)
- f. Event escalation
- g. Event reporting
- h. Intrusion Prevention Systems (IPS) management

3.4.6 TNOSC/FNOSC Remote Management

The Theater NOSC/FNOSC will remotely manage the AD domain controllers located with the EDS-Lite Hub from their specific theater of operation. Specific EDS-Lite operations, management and defense actions include:

- a. Remotely manage and administer active directory Theater/functional domain controllers within EDS-Lite Hub.
- b. Ensure AD domain controllers at the EDS-Lite Hub meet DA and DoD IA and are integrated into the AD Forest security accreditation package.
- c. Manage and provide theater-level AV/IAVA services for domain controllers located at the EDS-Lite Hub.
- d. Delegate administrative roles necessary for distributed operations

- e. Establish replication schedule for the EDS-Lite GAL Synch across the WAN and within respective forest.
- f. Establish and manage System Accounts required for MIIS connectivity
- g. Provide EDS-Lite Situational Awareness NETCROP, to the Theater and to the A-GNOSC Information awareness.
- h. Will have the ability to lock down the network communication between the forest DC located in the Hub, the EDS-Lite MIIS servers and other local TNOSC resources.

The TNOSC/FNOSC will provide the following security services on the domain controllers located within the EDS-Lite Hub:

- a. Patch management (that includes IAVA reporting)
- b. Security scanning
- c. System log reviews
- d. Maintain accreditations
- e. Event analysis (content filtering, etc.)
- f. Event escalation
- g. Event reporting

3.4.7 Regional Chief Information Office (RCIO)

The RCIO is the Chief Information Officer for an assigned region. The RCIO translates strategic plans and technical guidance provided by the Installation Management Command (IMCOM) Regional Director (RD) and NETCOM into objectives, strategies, and architectural guidance for units and organizations within the assigned region. It is the principal staff officer responsible for the integration and synchronization of Command, Control, Communications, and Computers Information Management (C4IM) within the region. The RCIO provides IT policies, regulations, and guidance to Army installations in their region. The RCIO provides administrative and managerial IT support to DOIMs. The RCIO will:

- a. Monitor Network EDS-Lite Situational Awareness for impact on their region
- b. Ensure adherence to Enterprise policies, procedures, technical direction, configurations, and tools throughout the region

3.4.8 Organizational Unit Administrators

Ensure that OUs containing user attributes for which EDS-Lite has enterprise responsibility remain unblocked. This will ensure that the enterprise has the ability to read and modify enterprise user attributes IAW with Table 4 of this document.

3.5 EDS-Lite Administration Tasks

Administration of the EDS-Lite delegated through AD, which allows delegation of administrative permissions to OU administrator within the C-TNOSC. The following

tasks listed in Table 5 below are the responsibilities of the C-TNOSC O&M group for management of the EDS-Lite Hub. This does not include other forests DC's.

Table 6: EDS-Lite Administration Tasks

MANAGEMENT AREA	TASK	Can be delegated
Directory	Manage a global directory that presents a unified GAL to all forests (EDS-Lite Services)	N
	Manage the GAL for the Enterprise	N
EDS Lite Hub Servers	Monitor and manage servers except for forest domain controllers (at the hub sites)	N
Server Configuration	Create EDS-Lite server configuration guidelines	N
	Develop and implement standard security templates for EDS-Lite servers	N
	Establish a CCB & Configuration Control Review Board (CCRB) process	N
Configuration Management (CM)	Build and operate a CM suite to validate system patches, updates, or changes before implementation in a production environment.	N
	Provide enterprise wide O&M and CM of all servers for patch management, IA compliance and reporting, and Host (based) Intrusion Detection System (HIDS) monitoring to the Theater NOSC	N
	Notify theater/installations and distribute newly released IAVAs	N
	Notify installations and distribute all patches, updates, or changes once tested in the CM suite	N
	Provide security scanning of all primary components of the EDS-Lite Hub	N

MANAGEMENT AREA	TASK	Can be delegated
Virus/Policy Compliance	Manage the virus updates by establishing an enterprise AV server	N
	Create enterprise level virus protection guidelines	N
Naming convention	Implement standard naming conventions for components within the EDS-Lite Hub (see AD naming standards document)	N

4.0 Operational Impact

The following impacts occur upon the implementation of EDS-Lite services from the EDS-Lite Hub located within AKO facilities:

- a. The Operations and Management (O&M) of the EDS-Lite GAL Synch will change from a decentralized installation-based service to a partially centralize management approach. The Theater and Functional forest owners maintain control of the AD domain controllers and messaging services within their respective AD Forest. Overall scheduling and management of the replication of the EDS-Lite GAL Synch across the WAN and within a forest will reside at the administrative level of the respective forest.
- b. A single O&M help desk will provide EDS-Lite GAL Synch support from a single point.
- c. The TNOSC will provide EDS-Lite Situational Awareness NETCROP, to the Theater and to the A-GNOSC Information awareness. The A-GNOSC then supports Army NETOPS with status reporting, situational awareness, and operational support for the Army's portion of the GIG.

5.0 Constraints and Assumptions

The following are constraints considered in the implementation of EDS-Lite GAL Synch services at AKO location:

- a. Server Consolidation
- b. IT Service consolidation
- c. Mandated reduction of costs

6.0 EDS-Lite GAL Synch Risks and Mitigation Plan

IAW reference 3.0 a., the Commanding General, US Army Network Enterprise Technology Command/9th Army Signal Command (NETCOM/9th ASC) is the single authority assigned to operate, manage, and defend the Army's "Infostructure" at the enterprise level. NETCOM also has technical control and CM authority for the Army's networks, systems, and functional processing centers. NETCOM have operational review/coordination authority for any standard, system, architecture, design, or device

that affects the Army Enterprise. NETCOM is responsible to identify initiatives and actions that would correct IA vulnerabilities and the implementation of such. Primary responsibility for mitigation actions of the APC E2K3 hosting pertains to NETCOM.

6.1 EDS Lite GAL Synch associated risks

The hosting of EDS-Lite GAL Synch at AKO and GDS provides lower, and fewer risks than current disperse and different GAL Synch services that provides the services today. There are still risks associated with the service when provided by Army AKO and GDS facilities. The major risk foreseen with this setting is the fact that actions taken at the enterprise level or the local forest level can conflict or even affect adversely the services provided to the Army. In order to minimize these, NETCOM will provide for a configuration management process through the AEI-Tech CCB.

6.2 Current GAL Synch services associated risks

Current GAL Synch services are non-existent or at least disperse and unique across the AEI. There is no mechanism to validate their configuration or the compliance with current guidance and requirements. The installations providing these services today use different hardware configurations with the majority of them running locally customized configurations of Exchange 5.5. In this environment the implementation and verification of actions and solutions to security issues becomes inefficient and present high risks to the networks.

6.3 EDS-Lite GAL Synch mitigation

CM and Intrusion Detection are very important in maintaining the services provided to the Army operational. In order to maximize the mitigation of risks to the messaging services operations the Army will O&M this service from a central location. The TNOSCs and FNOSCS are responsible of the messaging services at their respective AD forest. This will provide maximum visibility to the Army and its commanders of the systems and provides a central repository for CM issues, reporting and actions.

7.0 Acknowledgement and Notes

This document addresses the CONOPS for EDS-Lite GAL Synch. See ref. 3.0h, EDS-Lite GAL Synch Architecture document for additional technical information.

APPENDIX A

Hardware and Software

Table A-1: Hardware Inventory

Contract #	Vendor	Description	Service Tag #	Warranty From	Warranty To	Location	Function	Host name
DABL00103D1008	DELL	POWEREDGE 2850 Dual Xeon 3.4GHz/2MB/2GB RAM	3VCL881	06/07/05	06/07/08	AKO DR Rack System	MIIS	
DABL00103D1008	DELL	POWEREDGE 2850 Dual Xeon 3.4GHz/2MB/2GB RAM	GTCL881	06/07/05	06/07/08	AKO DR Rack System	MIIS	
DABL00103D1008	DELL	POWEREDGE 2850 Dual Xeon 3.4GHz/2MB/2GB RAM	54YBL71	06/07/05	06/07/08	AKO DR Rack System	MIIS/IIFP	
DABL00103D1008	DELL	POWEREDGE 2850 Dual Xeon 3.4GHz/2MB/2GB RAM	35YBL71	06/07/05	06/07/08	AKO DR Rack System	MIIS/IIFP	
DABL00103D1008	DELL	POWEREDGE 2850 Dual Xeon 3.4GHz/2MB/2GB RAM	HCTL881	06/07/05	06/07/08		MIIS CM	
DABL00103D1008	DELL	POWEREDGE 2850 Dual Xeon 3.4GHz/2MB/2GB RAM	84VML71			AKO DR Rack System	MIIS/IIFP	
DABL00103D1008	DELL	POWEREDGE 2850 Dual Xeon 3.4GHz/2MB/2GB RAM	FGGSR71			AKO DR Rack System	MIIS/IIFP	
DABL00103D1008	DELL	POWEREDGE 2850 Dual Xeon 3.4GHz/2MB/2GB RAM	HHGSR71			AKO DR Rack System	MIIS/IIFP	
DABL00103D1008	DELL	POWEREDGE 6850 Quad Xeon 3.33GHz/8MB/24GB RAM	2TYKV71	06/07/05	06/07/08	AKO DR Rack System	SQL	
DABL00103D1008	DELL	POWEREDGE 6850 Quad Xeon 3.33GHz/8MB/24GB RAM	3TYKV71	06/07/05	06/07/08	AKO DR Rack System	SQL	
DABL00103D1008	DELL	POWEREDGE 6850 Quad Xeon 3.33GHz/8MB/24GB RAM	JSYKV71	06/07/05	06/07/08	AKO DR Rack System	SQL	
DABL00103D1008	DELL	POWEREDGE 6850 Quad Xeon 3.33GHz/8MB/24GB RAM	1TYKV71	06/07/05	06/07/08		SQL CM	
DABL00103D1008010	DELL	POWEREDGE 6850 Quad Xeon 3.33GHz/8MB/16GB RAM	91J5B81	08/31/05	08/31/08	AKO DR Rack System	SQL	
DABL00103D1008010	DELL	POWEREDGE 6850 Quad Xeon 3.33GHz/8MB/16GB RAM	B1J5B81	08/31/05	08/31/08	AKO DR Rack System	SQL	
DABL00103D1008010	DELL	POWEREDGE 6850 Quad Xeon 3.33GHz/8MB/16GB RAM	6SSN771	08/31/05	08/31/08	AKO DR Rack System	SQL	
DABL00103D1008	DELL	PowerVault 220S 14x146GB Drives SCSI Enclosure	B2RNS71	06/07/05	06/07/08	AKO DR Rack System	Storage	
DABL00103D1008	DELL	PowerVault 220S 14x146GB Drives SCSI Enclosure	C2RNS71	06/07/05	06/07/08	AKO DR Rack System	Storage	
DABL00103D1008010	DELL	PowerVault 220S 14x146GB Drives SCSI Enclosure	46X1B81	08/31/05	08/31/08	AKO DR Rack System	Storage	

Contract #	Vendor	Description	Service Tag #	Warranty From	Warranty To	Location	Function	Host name
DABL00103D1008010	DELL	PowerVault 220S 14x146GB Drives SCSI Enclosure	56X1B81	08/31/05	08/31/08	AKO DR Rack System	Storage	
DABL00103D1008010	DELL	PowerVault 220S 14x146GB Drives SCSI Enclosure	86X1B81	08/31/05	08/31/08	AKO DR Rack System	Storage	
DABL00103D1008010	DELL	PowerVault 220S 14x146GB Drives SCSI Enclosure	B6X1B81	08/31/05	08/31/08	AKO DR Rack System	Storage	
DABL00103D1008010	DELL	PowerVault 220S 14x146GB Drives SCSI Enclosure	C6X1B81	08/31/05	08/31/08		Storage CM	
DABL00103D1008	DELL	POWEREDGE 2850 Dual Xeon 3.33GHz/2MB/2GB RAM	JGGS71	06/29/05	06/29/08		ADAM HUB	
DABL00103D1008	DELL	POWEREDGE 2850 Dual Xeon 3.4GHz/2MB/2GB RAM	94YBL71	06/29/05	06/29/08	AKO DR Rack System	ADAM HUB	
DABL00103D1008	DELL	POWEREDGE 2850 Dual Xeon 3.4GHz/2MB/2GB RAM	76YBL71	06/29/05	06/29/08	DOIM Bldg 315	ADAM CM	
DABL00103D1008	SUN	Sun V440 4.15GHz UltraSparc1MB/32GB RAM	0529AD813 2	07/25/05	07/25/06	AKO DR Rack System	Data Consumer	
DABL00103D1008	SUN	Sun V440 4.15GHz UltraSparc1MB/32GB RAM	0529AD817 E	07/25/05	07/25/06	AKO DR Rack System	Data Consumer Spare	
DABL00103D1008	DELL	POWEREDGE 1855 Blades Dual Xeon 3.2GHz/2MB/4GB RAM		08/17/05	08/17/08	AKO DR Rack System	Domain Controller s	Total 100 with 97 in Hub
DABL00103D1008	DELL	Blade Enclosures for 10 Blades		08/17/05	08/17/08	AKO DR Rack System	Domain Controller s	Total 12 with 10 in Hub
DABL00103D1008	CISCO	Catalyst 3750G-48TS SMI Switch				AKO DR Rack System	Switch	
DABL00103D1008	CISCO	Catalyst 3750G-48TS SMI Switch				AKO DR Rack System	Switch	
DABL00103D1008	CISCO	Catalyst 3750G-48TS SMI Switch				AKO DR Rack System	Switch	
DABL00103D1008010	Dell	16 Port KVM Switch	GP3ZQ 61	08/31/05	08/31/08	AKO DR Rack System	Switch	
	Dell	16 Port KVM Switch	D7LW 481	12/21/05	12/21/200 8	AKO DR Rack System	Switch	
DABL00103D1007	IBM	Intel EM64T Dual Xeon 3.4GHz/2MB/2GB RAM		08/17/05	08/17/08		ADAM Forest	24x7x4

Table A-2: Software Inventory

Contract #	Description	Warranty From	Warranty To	Location	Component
DAAB15-01-A-1010-0001	Veritos for Sun Solaris	7/26/2005	7/26/2006	AKO DR	Data Consumer
DAAB15-01-A-1010-0001	Parol for Sun Solaris	7/26/2005	7/26/2006	AKO DR	Data Consumer
DAAB15-01-A-1010-0001	Opware for Sun Solaris	7/26/2005	7/26/2006	AKO DR	Data Consumer
DAAB15-01-A-1010-0001	NetBackup for Sun Solaris	7/26/2005	7/26/2006	AKO DR	Data Consumer
	MIIS 2003 Enterprise with SP update				MIIS Servers
	SQL 2000 Enterprise SP4				SQL Servers
	MIIS Feature Pack (IIFP) 1a				IIFP Servers
	Windows 2003 Enterprise Edition				MIIS & SQL Servers
	Windows 2003 Standard Edition SP1				ADAM & Blade Servers
	ADAM SP1				ADAM Servers

APPENDIX B

Army Enterprise User Attributes

The Enterprise AD User Attributes table below contains a list of Army AD user enterprise attributes required to provide a GAL within exchange and to populate user information within each of the approved AD forests. The table lists AD attributes name, a description, the source, how enterprise attributes are updated in AD, and the agency responsible for attribute management. The attributes listed in the table are under the enterprise Configuration Control Management (CCM). The AEI Tech CCB must approve any changes to the baseline attribute list in accordance with (IAW) the AEI-Tech charter.

The AD User object attributes represents the list of attributes that DoD requires to be utilized and those that the Army requires to be used per the Army naming conventions.

The enterprise will use extended attributes 1, 2, 3, 4, and 5. If these extension attributes fields contain any other data than what is outline in the attribute table below, this data should be moved (if required) to another extension attribute not used by the enterprise. If not moved prior to EDS Lite implementation, EDS-Lite will overwrite the data in those fields. The table below list the enterprise attributes and management responsibility.

Extension Attributes 6, 7, 8 and 9 are for local installation use. The local installation defines them and has their management responsibility. The information source is the local installation; EDS-Lite will not use these attributes for updates.

The Army for future use reserves extension Attributes 10, 11, 12, 13, 14, and 15. They will require a Request for Change (RFC) approval for use.

Table B-1: Army AD User Attribute List

AD Attribute User Name	User Descriptive Attribute	Attribute Source	EDS-Lite Updates Attribute in AD	Management Responsibility
Sn	Last Name Letters (A-Z, a-z, space, apostrophe, and hyphen allowed)	AD	NO	Forest Owner (OU admin)
givenName	First Name Letters (A-Z, a-z, space, and - allowed)	AD	NO	Forest Owner (OU admin)
initials	Middle Initial Single letter (A-Z) or blank allowed.	AD	NO	Forest Owner (OU admin)
generationQualifier	Generational Qualifier Letters, numbers or blank allowed.	AKO	YES	Enterprise
personalTitle	Rank (for Military personnel), or Salutation (for non-Military individuals)	Rank-AKO Salutation-AD	YES (Rank only)	Rank-Enterprise Salutation-Forest Owner (OU admin)
ExtensionAttribute1	DOD Component IAW Army Naming Convention Table Section 7	AD	YES	Forest Owner (OU admin)
ExtensionAttribute2	DOD Sub-Component IAW Army Naming Convention Tables Section 7-2 (9)	AD	Yes	Forest Owner (OU admin)
mail	Electronic Mail Address (AKO Email Address)	Used for Joint purposes only	NO	Forest Owner (OU admin)

AD Attribute User Name	User Descriptive Attribute	Attribute Source	EDS-Lite Updates Attribute in AD	Management Responsibility
extensionAttribute4	Foreign National Country Code “FN” and the ISO-3166 three-character codes shall be used. See Appendix A for details	AKO	YES	Enterprise
Title	Position IAW Army Naming Convention Section 7	AD	NO	Forest Owner (OU admin)
displayName	Display Name Format: Last Name <COMMA> <SPACE> First Name <SPACE> Middle Initial <SPACE> Generational Qualifier <SPACE> Foreign National Country Code <SPACE> Rank/Salutation <SPACE> DOD Component <SPACE> DOD Sub-Component	EDS-Lite Data from AD, AKO and Calculated values.	YES	Enterprise
EmployeeID	EDIPI	AKO	YES	Enterprise
EmployeeType	Personnel Type	AD	NO	Forest Owner (OU admin)
UserCertificate	PKI Certificate	GDS	YES	Enterprise
telephoneNumber	Office Telephone Number	AD	NO	Forest Owner (OU admin)
facsimileTelephoneNumber	Fax Number	AD	NO	Forest Owner (OU admin))
Address	Street Address	AD	NO	Forest Owner (OU admin)
l	City	AD	NO	Forest Owner (OU admin)
St	State Name	AD	NO	Forest Owner (OU admin)
postalCode	Zip Code	AD	NO	Forest Owner (OU admin)
Phone-Office-Other	DSN	AD	NO	Forest Owner (OU admin)
ExtensionAttribute3	Contains information for processing in EDS-Lite IAW Army Naming Convention	AD	YES	Forest Owner (OU admin)
ExtensionAttribute5	Contains the name of Top Level Organizational Unit (OU) Purpose is to create installation address lists	AD	Yes	Enterprise
Extension Attributes 6, 7, 8, 9	Are for local installation use. The local installation defines their use.	Local installation OU Administrators	No	Local installation OU Administrators
Extension Attributes 10, 11, 12, 13, 14, and 15.	Reserved for future use by the Army	N/a	N/a	Requires approved RFC for use.